

## REMARKS

Claims 1-4 and 13-26 are pending in this application. By this Amendment, claims 1, 3, 14 and 18 are amended and claims 20-26 are added. Support for new claims 20-26 can be found in the original specification, for example, see Figure 1 and paragraph [0044]. Reconsideration in view of the above amendments and following remarks is respectfully requested.

1. 35 U.S.C. §102(b)

A. Auer et al.

The Office Action rejects claims 1, 2, 4, 13, 15-17, and 19 under 35 U.S.C. §102(b) as being anticipated by *Auer et al.* (U.S. Patent No. 6,165,635, hereinafter referred to as "*Auer*"). The rejection is respectfully traversed.

Claim 1 recites a catalyst particle for a cathode of fuel cells, wherein the whole particle or at least the surface of the particle comprises an alloy of FeCu, FeAg, FeAu, FeZn, FeCd, CoRh, CoPd, CoCu, CoAg, CoAu, CoZn, CoCd, NiRh, NiPd, NiCu, NiAg, NiAu, NiZn, NiCd, RhCu, RhAg, RhAu, RhZn, RhCd, PdCu, PdAg, PdAu, PdZn, PdCd, PtCu, PtAg, PtAu, CuAg, CuAu, CuZn, CuCd, AgAu, AgZn, AgCd, AuZn, AuCd or ZnCd and the alloy has a stronger oxygen-binding force than platinum or a weaker hydrogen-binding force than platinum.

*Auer* discloses a platinum alloy catalyst which contains an alloy of 40 to 60 atom-% of platinum, 10 to 20 atom-% of rhodium and 20 to 50 atom-% of iron. However, *Auer* fails to disclose or suggest, as recited in claim 1, at least the feature of an alloy of FeCu, FeAg, FeAu, FeZn, FeCd, CoRh, CoPd, CoCu, CoAg, CoAu, CoZn, CoCd, NiRh, NiPd, NiCu, NiAg, NiAu, NiZn, NiCd, RhCu, RhAg, RhAu, RhZn,

RhCd, PdCu, PdAg, PdAu, PdZn, PdCd, PtCu, PtAg, PtAu, CuAg, CuAu, CuZn, CuCd, AgAu, AgZn, AgCd, AuZn, AuCd or ZnCd. Rather, *Auer* only discloses a platinum-rhodium-iron alloy.

For at least the reasons set forth above, Applicants respectfully submit that claim 1 is allowable. Claims 2, 4, 13, 15-17, and 19 depend from claim 1 and are allowable for at least the same reasons. Withdrawal of the rejection is respectfully requested.

B. *Ito et al.*

The Office Action rejects claims 1-4 and 13-19 under 35 U.S.C. §102(b) as being anticipated by *Ito et al.* (U.S. Patent No. 4,716,087, hereinafter referred to as "*Ito*"). The rejection is respectfully traversed.

*Ito* discloses a platinum alloy electrocatalyst composed of a platinum-copper alloy containing 15 to 50 atomic percent of copper (the balance being platinum). See abstract. However, similar to *Auer*, *Ito* fails to disclose or suggest the alloys recited in claim 1. Rather, *Ito* only discloses a platinum-copper alloy.

For at least the reasons set forth above, Applicants respectfully submit that claim 1 is allowable. Claims 2-4 and 13-19 depend from claim 1 and are allowable for at least the same reasons. Withdrawal of the rejection is respectfully requested.

C. *Marucchi-Soos et al.*

The Office Action rejects claims 1-4 and 13-19 under 35 U.S.C. §102(b) as being anticipated by *Marucchi-Soos et al.* (U.S. Patent No. 5,916,702, hereinafter referred to as "*Marucchi*"). The rejection is respectfully traversed.

*Marucchi* discloses a composition comprising a carbon-supported, dispersed platinum-zinc alloy having the formula  $\text{Pt-Zn}_x/\text{C}$ . See abstract. However, similar to *Ito* and *Auer*, *Marucchi* fails to disclose or suggest the alloy as recited in claim 1. Rather, *Marucchi* only discloses a platinum-zinc alloy.

For at least the reasons set forth above, Applicants respectfully submit that claim 1 is allowable. Claims 2-4 and 13-19 depend from claim 1 and are allowable for at least the same reasons. Withdrawal of the rejection is respectfully requested.

## **2. New Claims**

New claims 20-26 have been added to the application. Claims 20-25 depend from claim 1 and are allowable for at least the same reasons that claim 1 is allowable. Claim 26 is allowable over the cited references because none of the cited references include at least the features of an alloy with a stronger oxygen-binding force than platinum or a weaker hydrogen-binding force than platinum, wherein the alloy has an oxygen-binding energy of at least 4.5 eV and/or the alloy has a hydrogen-binding energy of at most 2.5 eV.

For at least the reasons mentioned above, Applicants respectfully submit that all pending claims are in condition for allowance.

## **3. Conclusion**

Applicants invite the Examiner to contact Applicants' representative at the telephone number listed below if any issues remain in this matter, or if a discussion regarding any portion of the application is desired by the Examiner.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

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